

## EXHIBIT 8

<b>Deposition</b>	<b>Plaintiffs' Designation</b>	<b>Defendants' Corresponding Counter Designation</b>	<b>Reason that Defendants' Counter Designation Must be Considered According to Fed.R.Civ.P 32(a)(4)</b>
Scott Minnich, May 26, 2005	7:17-20, 7:24-8:1	8:2-9:1	Defendants' designation immediately follows Plaintiffs' designation and is the continuation of a line of questioning regarding Minnich's opinion about the case
	All of Plaintiffs' designations	10:15-21	Defendants' designation addresses the subject of whether Minnich is an expert on any of the issues relevant to the case, and this designation speaks to Minnich's competency regarding <i>all</i> of Plaintiffs' designations
	34:13-18	33:9-34:5	Plaintiffs' designation addresses Minnich's understanding of creationism and Defendants' designation, which precedes Plaintiffs' designation, addresses the same issue and is part of the same line of questioning
	34:13-18	34:19-35:19	Defendants' designation addresses the difference between intelligent design and creation science and immediately follows Plaintiffs' designation regarding creation science

	34:13-18, 42:8-1, 93:13-94:14	36:10-37:1	Defendants' designation addresses the difference between intelligent design and creation science, which must be included given that it follows Plaintiffs' designation regarding creation science and also is necessary to give a foundation for the other sections noted, which have been designated by Plaintiffs and address either intelligent design or creationism
	42:8-11	40:1-41:7	Defendants' designation clarifies that Minnich's opinion on who the intelligent designer is in his personal, not scientific opinion, and must be included to counter Plaintiffs' designation a few questions later regarding his opinion
	42:8-11	42:12-42:20	Defendants' designation immediately follows Plaintiffs', is part of the same line of questioning, and addresses the same subject of who the "designer" in intelligent theory
	71:2-72:1, 73:17-74:4	72:3-73:12	Defendants' designation is directly in between Plaintiffs' designations and deals with the same issue of the age of the earth and the timeline of appearance of certain life forms

	93:13-94:14	83:9-84:16	Defendants' designation addresses the topic of what the definition of a valid scientific theory is, and whether intelligent design qualifies as such, and Plaintiffs' designations address the same idea of what scientific concept is necessary in order for intelligent design theory to be considered valid science
	93:13-94:14	95:5-15	Defendants' designation follows Plaintiffs' and is part of the same line of questioning about whether intelligent design can be considered valid science

IN THE UNITED STATES DISTRICT COURT  
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

TAMMY J. KITZMILLER; BRYAN )  
REHM; DEBORAH F. FENTIMORE; ) CIVIL ACTION  
JOEL A. LIEB; STEVEN STOUGH; ) No. 4:04-CV-2688  
BETH A. EVELAND; CYNTHIA )  
SNEATH; JULIE SMITH; ARALENE )  
D. CALLAHAN ("BARRIE"); )  
FREDERICK B. CALLAHAN, )

Plaintiffs, )

vs. )

DOVER AREA SCHOOL DISTRICT; )  
DOVER AREA SCHOOL DISTRICT )  
BOARD OF DIRECTORS, )

Defendants. )

COPY

DEPOSITION OF SCOTT MINNICH, Ph.D.

TAKEN ON BEHALF OF THE PLAINTIFFS

AT MOSCOW, IDAHO

MAY 26, 2005, AT 8:45 A.M.

REPORTED BY:

NEIL COOLEY, C.S.R.  
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1 instructions. Please answer all the questions  
2 orally. Please don't nod your head or say uh-huh or  
3 huh-uh, because then the court reporter won't be  
4 able to take down your answer accurately.

5 If you do not hear a question or don't  
6 understand a question, please tell me. Please wait  
7 until I have finished asking my question before you  
8 begin your answer. And if you realize that an  
9 earlier answer you gave was inaccurate or  
10 incomplete, please say that you would like to  
11 correct a former answer and I will give an  
12 opportunity to do so.

13 And if your attorney objects to one of my  
14 questions, you are still required to answer the  
15 question unless your attorney instructs you not to  
16 answer.

17 And do you understand the instructions I  
18 have given you?

19 A. I do.

20 Q. And do you understand that you under oath  
21 and are required to tell the truth?

22 Q. I do.

23 Q. Is it correct that you are serving as an  
24 expert for the defendants in this case?

25 A. Yes.

1 A. No.  
2 Q. And can you tell me what the principal  
3 opinions you have in this case are?

4 A. That intelligent design is a viable  
5 scientific theory.

6 Q. Anything else?

7 A. No, I mean in terms of my expertise in  
8 this case, you know, it is whether or not  
9 intelligent design is a competing theory in part to  
10 the current consensus in biology.

11 Q. When you say intelligent design is a  
12 viable scientific theory, can you explain what you  
13 mean by viable?

14 A. In other words, it is looking at the  
15 public evidence and interpreting that evidence in  
16 the sense that the design we see in nature is real  
17 design, not just apparent design, which most of my  
18 colleagues hold the latter view.

19 Q. Uh-huh, so when you use the word viable,  
20 do you mean it is real?

21 A. It's real, it's real, okay? It is  
22 science, it is not a religious position. It has  
23 metaphysical implications, like evolution does, but  
24 that is incidental, secondary to its explanatory  
25 power when we look at the facts and experiences that

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1 Q. Let me pull out your expert report, and  
2 we are going to mark that as Exhibit 1.

3 (Deposition Exhibit No. 1 marked for  
4 identification.)

5 BY MR. LUCHENITSER:

6 Q. We have marked as Exhibit 1 the expert  
7 report of Scott Minnich. And if you could flip to  
8 Exhibit A to Exhibit 1, which is the biographical  
9 sketch in the back, please, does that Exhibit A  
10 correctly reflect your educational and employment  
11 history?

12 A. It does.

13 Q. And is everything in there still correct  
14 or current or has something changed since you  
15 submitted it?

16 A. No, it is still current.

17 Q. What were you asked to give an opinion  
18 about by the defendants in this case?

19 A. The theory of intelligent design and how  
20 it fits into this case in Dover, Pennsylvania.

21 (Off the record.)

22 MR. LUCHENITSER: Back on the record.

23 BY MR. LUCHENITSER:

24 Q. Were you asked to give an opinion about  
25 anything else?

1 we see in the natural world.

2 Q. What are the metaphysical implications  
3 that intelligent design has?

4 A. That there is design behind it, that  
5 there is an intelligence in part responsible for  
6 what we see.

7 Q. And let me ask you, why do you use the  
8 word metaphysical?

9 A. Well, it is philosophical, metaphysical.  
10 I mean, in that realm it doesn't require a religious  
11 position, you know? It can be more of -- a person  
12 can hold the view of intelligent design as being  
13 real and believe in the God of Espinoza or Einstein,  
14 the God of the philosophers, not of a traditional  
15 God that we think of in the context of traditional  
16 religions.

17 Q. Does your report identify all the subject  
18 matter that you are going to testify about at trial?

19 MR. WHITE: I have to object because I  
20 couldn't hear you.

21 BY MR. LUCHENITSER:

22 Q. I'm sorry, does your expert report  
23 identify all the subject matter that you will  
24 testify about at trial?

25 A. That's an absolute statement, and being a

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1 scientist. I always hesitate. But this is in  
2 terms of my own research and training, it is  
3 reflected in this report.

4 Q. Do you intend to express any opinions in  
5 this case that have not been included in your  
6 report?

7 A. If I am asked a question that is not  
8 directly applicable to this report, I may choose to  
9 respond or not if I have knowledge in the area. No,  
10 this isn't a complete tome of all the knowledge that  
11 I have.

12 Q. Do you have any plans to supplement your  
13 report in any way?

14 A. No, not at present.

15 Q. Do you consider yourself an expert on any  
16 issues relevant to this case?

17 A. As they bring to bear on examples that  
18 are being disputed by both camps, you know, the area  
19 of irreducible complexity of the bacterial  
20 flagellum, molecular machines, genetics,  
21 microbiology.

22 Q. What is -- do you have an area of  
23 specialty within the discipline of biology?

24 A. I do, I am a microbial geneticist focused  
25 on an area we refer to as microbial pathogenesis,

1 between Monsanto and some other company in terms of  
2 who had the right to that gene.

3 Q. Would you consider yourself an expert in  
4 evolutionary biology?

5 A. That's a difficult question and I want to  
6 qualify it, because I was challenged here at the  
7 University of Idaho several years ago when Robert  
8 Pennock came and gave a seminar. And he knew my  
9 position and he challenged me in the audience with  
10 respect to, "How can you, as a practicing  
11 contributing scientist, hold the position that is  
12 contrary to the very foundation of your discipline?"  
13 Okay? This is in front of all of my colleagues and  
14 students in a formal departmental seminar.

15 And I responded that, "That's an  
16 interesting question, and now that you have raised  
17 it, I'm sure a lot of people are interested in my  
18 response."

19 What I find interesting in my own  
20 experience, and that of colleagues in this  
21 department -- and we are the most highly funded and  
22 I think the most successful in getting extramural  
23 funding, publication in peer-reviewed journals, we  
24 have several new faculty so I don't want to make an  
25 absolute statement, but, you know, the past couple

1 organisms that cause disease.

2 Q. Has that area been the focus of your  
3 professional research?

4 A. Yes.

5 MR. WHITE: Object as far as what time  
6 frame you are talking about for his professional  
7 research.

8 THE WITNESS: Yes, currently. I have had  
9 other experiences, too. I have been in diagnostics,  
10 I have been in developmental biology, and -- I'm  
11 trying to think in terms of just how you quoted  
12 this, basic molecular biology, molecular genetics.

13 As an example, the controversy about  
14 genetically engineered foods and BT toxins. I don't  
15 know whether you are familiar with this at all,  
16 bacillus thuringiensis toxin. This has been  
17 incorporated into agricultural plants and has been  
18 controversial because of the ethical concerns about  
19 introducing or modifying plant genomes.

20 But that bacillus toxin gene I cloned as  
21 a post-doc, and we gave it to Monsanto 20 years ago.

22 So occasionally I am called to -- in  
23 fact, four or five years ago I had my research  
24 notebooks subpoenaed because of a patent lawsuit  
25 involved in who owned the rights to that. That was

1 of years -- but at that time nobody in this  
2 department, as a student or post-doc, had taken,  
3 except for one person, a formal course in evolution.  
4 None of them, except for one person, had read  
5 Darwin's book.

6 So when you say an expert on evolution,  
7 you know, we are all biologists and we are all  
8 contributing biologists, but in our training we have  
9 not been required to study formally evolution as a  
10 subject.

11 So I would say I am not, per se, an  
12 expert. I know a lot about it. I think I  
13 understand it clearly. But in terms of, you know,  
14 looking at my transcripts through graduate school,  
15 undergraduate school, post-doctoral training at  
16 Purdue and Princeton, you will find no evidence that  
17 I took a course in evolution.

18 In fact, when I wanted to as a graduate  
19 student my mentor dissuaded me from doing it. He  
20 said pretty derogatory things about it.

21 Q. So you have never actually taken a course  
22 in evolution?

23 A. And that's the common experience for most  
24 of my colleagues throughout my career.

25 Q. Right, and that's your experience. I was



1 sentence on page one after the big bold-headed one.  
2 THE WITNESS: Right. Right.  
3 BY MR. LUCHENITSER:  
4 Q. And is that your understanding of what  
5 intelligent design theory is?  
6 A. That's my statement in terms of my --  
7 Q. So that's your personal opinion?  
8 A. Yes.  
9 MR. WHITE: Objection, when you say  
10 personal opinion, you are talking about as a  
11 scientist, as an expert?  
12 BY MR. LUCHENITSER:  
13 Q. Your personal scientific opinion?  
14 A. Right.  
15 Q. Is that definition of intelligent design  
16 generally understood to be the correct definition  
17 among scientists that are studying and advocating  
18 for intelligent design?  
19 A. In a broad sense, yes.  
20 Q. And can you tell me why you said in a  
21 broad sense? Is there some sense in it which it is  
22 not agreed upon?  
23 A. In terms of just asking, all right, in a  
24 thumbnail sketch, what intelligent design is, the  
25 theory is it is saying essentially this, that the

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1 deep complexity, that apparent design is real  
2 design, is a product of an intelligent agent.  
3 Q. Are there persons in the field of  
4 intelligent design who have not reached the  
5 conclusion that an intelligent designer is  
6 responsible for the deep complexity and clearly  
7 into, if you will, the deep complexity in organisms  
8 and are not sure about that matter?  
9 MR. WHITE: Objection, confusing  
10 question. Did you understand the question?  
11 THE WITNESS: Not -- I mean, what is the  
12 alternative? I mean, if something is designed and  
13 you hold that it is real design, then I think by  
14 definition there is an intelligence behind it.  
15 BY MR. LUCHENITSER:  
16 Q. Let me try to re-ask the question. You  
17 have concluded that there is a designer; is that  
18 correct?  
19 A. Correct.  
20 Q. Are there persons in the field of  
21 intelligent design who have not reached the  
22 conclusion as to whether or not there is a designer  
23 but are uncertain about that?  
24 A. There are people that are to a degree, I  
25 think, agnostic in terms of that. I mean, David

1 Balinski has stated that he favors intelligent  
2 design but he doesn't want to put words in his  
3 mouth, but my understanding of his position, and I  
4 could be clarified, he agrees that there is real  
5 design but he is agnostic in terms of where that  
6 design is coming from, okay? In other words, it's a  
7 viable compliment to our current consensus position,  
8 it appears to be something more than just natural  
9 law at work.  
10 Q. So is the conclusion that there is a  
11 designer, is that an integral component of  
12 intelligent design theory?  
13 A. No, not necessarily, not necessarily.  
14 You know, designer has a broad interpretation as  
15 well.  
16 Q. So is it the case that somebody can be a  
17 scientist in the field of intelligent design but can  
18 conclude there is no designer or that it is unclear  
19 whether there is a designer?  
20 A. Are you asking are there scientists that  
21 believe there is no designer?  
22 Q. Scientists that are in the field of  
23 intelligent design theory.  
24 A. No.  
25 Q. Are there any alternative definitions of

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1 intelligent design that are different from the  
2 definition you gave in your report?  
3 A. I think my written statement is  
4 consistent with my colleagues in terms of -- you  
5 know, I think there are philosophers of science in  
6 the intelligence design arena that are more  
7 articulate in terms of the philosophical  
8 implications of this.  
9 Q. How would you define creationism?  
10 A. Creationism, which I think is very  
11 different than intelligent design, uses biblical  
12 reference by which you judge science. In the  
13 traditional sense, scientific creationism held to a  
14 literal interpretation of Genesis and thought that  
15 that was an embodiment of truth and that science  
16 should be filtered through that viewpoint.  
17 I disagree with that stand. In fact, I  
18 was never an active participant in scientific  
19 creationism as it went through the Louisiana and  
20 Arkansas debates, I thought it was out of balance.  
21 Q. Is there a difference between creation  
22 science and creationism?  
23 A. Well, in terms of definitions, yes, I  
24 think it is subtle. Creationism, again I think in  
25 the traditional sense as it is used in the public



1 arena, implies a literal interpretation of Genesis.  
 2 Scientific creationism then tries to look at the  
 3 body of scientific understanding and fit it  
 4 consistently with that viewpoint of biblical  
 5 interpretation.

6 Q. Is teaching of creationism or creation  
 7 science -- is the teaching of that, that forms of  
 8 life began abruptly -- begin abruptly in their basic  
 9 types, for example, fish with fins and scales, birds  
 10 with feathers and beaks and wings?

11 A. That's -- repeat the question because I  
 12 want to make sure I understand it.

13 Q. Does creationism or creation science  
 14 teach that forms of life began abruptly in their  
 15 basic types? For example, fish began with fins and  
 16 scales and birds began with feathers, beaks and  
 17 wings?

18 A. That is my understanding, yes.

19 Q. What is the difference between  
 20 intelligent design theory and creation science?

21 A. Intelligent design theory isn't dependent  
 22 upon any formal religious writing or revelation in  
 23 which you are trying to match the natural world to  
 24 show consistency. It is simply looking at the  
 25 science and asking the question: Is the design that

1 Q. You can go ahead and answer.

2 MR. WHITE: If you understand the  
 3 question.

4 THE WITNESS: Repeat it one more time, or  
 5 let me ask a question to make sure I understand it.

6 Does creation science and intelligent  
 7 design both come to the same conclusion, is that  
 8 what you are asking?

9 BY MR. LUCHENITSER:

10 Q. Let just ask the question, does  
 11 intelligent design theory reach any conclusions that  
 12 are different from the conclusions reached by  
 13 creation science?

14 A. Oh, for sure.

15 Q. What are the differences? What different  
 16 conclusions does -- what conclusions does  
 17 intelligent design theory reach that are --

18 A. Well, creation science, I think, is  
 19 really an area of apologetics, religious  
 20 apologetics. They want the science to validate the  
 21 scriptural content of Genesis, okay? And  
 22 intelligent design isn't going to go that far. You  
 23 can say that -- looking at the data, what we know in  
 24 terms of chemistry and physics, genetics and natural  
 25 selection, that there is a real design, and you stop

1 we all agree is there real or apparent? Okay? It  
 2 is a valid question and I think we should be  
 3 addressing it at a scientific level in our  
 4 inquiries.

5 It is that simple, okay? It doesn't have  
 6 any basis of going further than looking or devising  
 7 theories or hypotheses to look at how you detect  
 8 design. Our record of life on this planet, does it  
 9 fit with an intelligent agent or, again, is natural  
 10 law, in terms of physics and chemistry, of what we  
 11 know of genetics, sufficient to produce the  
 12 diversity that we see in life?

13 And you end right there, yes or no. It  
 14 is an interesting question, it is a valid question,  
 15 and it should be addressed. I mean, and that's why  
 16 we are here, you know? That's what Ken Miller is  
 17 writing about. Robert Pennock, he is asking the  
 18 question, can natural law come up with de novo  
 19 information?

20 Q. Does intelligent design theory reach any  
 21 conclusions that are different from the conclusions  
 22 reached by creation science?

23 MR. WHITE: Objection as to vagueness,  
 24 ambiguity.

25 BY MR. LUCHENITSER:

1 there.

2 Q. Can you tell me what theistic evolution  
 3 is?

4 A. Theistic evolution is the position, as I  
 5 understand it, that there is a designer or creator  
 6 that designed the universe, started the clock going,  
 7 designed the laws of physics and chemistry, and that  
 8 life, through those laws, emerged and has evolved.

9 But it is more of an impersonal activity. In other  
 10 words, the machine was started and is removed from  
 11 that machine, so that organisms do evolve in terms  
 12 of our common consensus.

13 Q. Can someone who believes in theistic  
 14 evolution also believe that God in some way guides  
 15 the progress of evolution?

16 A. Sure, I mean I think you have the entire  
 17 spectrum of people that believe in a designer or  
 18 creator in terms of his participation in the world  
 19 as we know it.

20 Q. What is the difference between theistic  
 21 evolution and intelligent design theory?

22 A. Theistic evolutionists, I think, agree  
 23 that given, for instance, the planet earth in its  
 24 early stages of development had incorporated in it  
 25 all the necessary components for the emergence of

1 life and its subsequent diversity, that there is no  
2 input from the designer from that point, okay?  
3 So it is really consistent with the  
4 Darwinian viewpoint that you just started it by an  
5 intelligent agent or God and then everything  
6 unfolds.

7 Intelligent design sees a more active  
8 part of a designer from the sense that from my own  
9 perspective I look at the bacterial flagellum, it  
10 has stators and rotors and propellers and u-joints,  
11 it is battery powered, it looks like engines that  
12 Mazda makes, in one sense, but it is much more  
13 sophisticated because there is an algorithm or  
14 program that directs its assembly from genetic  
15 information and it regulates the timing of synthesis  
16 and the position where it is assembled, that that is  
17 a product of intelligence.

18 And from my position you don't get these  
19 machines by totally natural process. I mean, they  
20 can change and evolve, I don't know at what level or  
21 to what extent, but the prototypic or aboriginal  
22 machine has all the hallmarks of design based on our  
23 experience of machines that we manufacture.

24 Q. Other than the ultimate claim that a  
25 designer or designers were responsible for the

1 Q. Do you have a scientific opinion as to  
2 who the intelligent designer is?  
3 A. No.  
4 Q. Do you have a personal opinion?  
5 A. Yes, I do.  
6 Q. You do. What is your personal opinion?  
7 MR. WHITE: Objection as to relevancy.  
8 Go ahead.

9 THE WITNESS: I want to make sure that  
10 this is -- I mean, I have a problem in terms of  
11 giving my opinion, but my experience, when asked  
12 these questions, is that they are somewhat loaded.  
13 In other words, in my discussion with Robert Pennock  
14 when he was here and we were discussing type III  
15 secretory systems and the flagellum, claims of  
16 intelligent design, he then turned on me in this  
17 public audience and said, "Who is the creator?"

18 And I said, "Well, I have an opinion, but  
19 we are talking science, why do you want to bring  
20 religion into the question?"

21 No, "Who is the creator? Tell us who the  
22 creator is?"

23 And in part I think there is an attempt  
24 to marginalize people in this area as  
25 fundamentalists, you know, Christians that want to

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1 development of life forms on the planet earth, does  
2 intelligent design make any other scientific claims?

3 MR. WHITE: Objection, it is misleading.

4 THE WITNESS: I'm not quite sure what you  
5 mean in terms of other scientific claims. Give me  
6 an example. You know, is it going to tell me that  
7 butter is better for me than margarine? I mean --  
8 BY MR. LUCHENITSER:

9 Q. I guess let me try to see if I can  
10 rephrase it.

11 What is the scientific content of an  
12 intelligent designer, other than the ultimate  
13 assertion that there is a designer or designers?

14 A. That's the main principle, okay?

15 Q. Is there anything else?

16 A. I would have to think about it in terms  
17 of the question. So if we proceed, I will come back  
18 to that.

19 Q. Do you have an opinion, a personal  
20 opinion, as to who or what the intelligent designer  
21 is?

22 MR. WHITE: Objection as to are you  
23 asking for his personal opinion or his opinion as a  
24 scientist?

25 BY MR. LUCHENITSER:

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1 get the bible back into the classroom, and that's  
2 invalid. But I am a Christian, that's my personal  
3 faith.

4 And I also would like to state for the  
5 record that that is not my family's faith tradition.  
6 I was an agnostic, probably an atheist, and when I  
7 took a course in biology and was confronted with the  
8 design in the bacteriophage Landa, it made me pause  
9 and think, is this the product of chance and  
10 necessity?

11 Okay, so I am a Christian because of the  
12 data, not despite it.

13 Q. So this experience led you to become a  
14 Christian?

15 MR. WHITE: Objection as of "this  
16 experience."

17 BY MR. LUCHENITSER:

18 Q. The experience when you were studying  
19 this life form?

20 A. No, I think it was a factor, you know, in  
21 my own personal journey, but I had no reason to --  
22 at the point until I started taking biology classes  
23 -- in fact, I was an English history major that took  
24 a general chemistry course that had a molecular  
25 biology component and was so fascinated by the

1 information. I don't know any more, because I was  
2 interested in the science, the beauty of the  
3 science, and the more I studied, it had  
4 implications.  
5 Q. This is when you were an undergraduate,  
6 did you say?  
7 A. Right.  
8 Q. So is it correct that your personal  
9 opinion is that the intelligent designer is the God  
10 of Christianity?  
11 A. Yes.  
12 Q. Is there a consensus within intelligent  
13 design theory as to who the designer is or what it  
14 is?  
15 A. No.  
16 Q. Does intelligent design theory make any  
17 claims as to who or what the designer is?  
18 A. No, in a formal sense it doesn't. It  
19 says you can infer design and therefore designer,  
20 but that's as far as the science goes.  
21 Q. Does intelligent design theory rule out  
22 any type of possible designers?  
23 Q. Not necessarily.  
24 Q. Does intelligent design theory rule out  
25 all possible and natural actors as designers?

1 A. Not to my knowledge.  
2 Q. Does intelligent design theory hold that  
3 there is only one designer or is it -- can it be  
4 consistent with intelligent design theory that there  
5 might be multiple designers?  
6 A. No, I mean -- again, you can just infer  
7 design from the public evidence and, you know -- I  
8 mean, we have multiple engineers that work in  
9 consortia to produce machines today, who is to say  
10 it is not true in the biological world? I don't  
11 know.  
12 Q. And under intelligent design theory, is  
13 it possible that the designers are -- that there  
14 might be multiple competing designers?  
15 A. I don't know. I don't know what you mean  
16 by in terms of competing designers.  
17 Q. As opposed to designers who are working  
18 together with each other, designers who are trying  
19 to come up with life forms that end up competing or  
20 opposing each other?  
21 MR. WHITE: Objection, calls for  
22 speculation.  
23 BY MR. LUCHENITSER:  
24 Q. Is that possible under your theory?  
25 A. Yes, I mean, that's speculative, and I

1 A. Natural what? I didn't hear your --  
2 Q. Natural actors.  
3 A. Natural actors?  
4 Q. Yes.  
5 MR. WHITE: Objection, vague, ambiguous.  
6 What do you mean by natural actors?  
7 BY MR. LUCHENITSER:  
8 Q. Under intelligent design theory, is it  
9 possible that space aliens could be the designers?  
10 MR. WHITE: I didn't hear what you said,  
11 under what?  
12 BY MR. LUCHENITSER:  
13 Q. Under intelligent design theory, is it  
14 possible that space aliens could be the designers?  
15 A. Sure.  
16 Q. Is it possible that time traveling humans  
17 could be designers?  
18 A. I don't know. I mean, that's  
19 speculation. I don't know. I mean, that's asking  
20 me to speculate on time travel, which is a  
21 hypothetical situation, and so I don't think it is  
22 really pertinent to my contribution or expertise.  
23 Q. Has any work been done within intelligent  
24 design theory relating to the issue of who the  
25 designer is?

1 think it would be too early to say, but I wouldn't  
2 rule it out. I mean, again -- never mind, I will  
3 leave it at that.  
4 Q. Is intelligent design theory in any way  
5 intended to eventually determine which of these  
6 possibilities is the designer?  
7 A. No, not formally. I think it will have  
8 implications, but it is not -- no, no, I think --  
9 you know, the book is open in terms of the  
10 implications of who the designer is. That  
11 translates into philosophy and religion and, you  
12 know, there is plenty of writing and experts on  
13 that.  
14 Q. So do I understand you correctly that the  
15 theory is not even going to try to determine who or  
16 what the designers are or is?  
17 A. I think there are people within the  
18 design community that have opinions with respect to  
19 that, but, you know, from my own perspective I don't  
20 have an agenda.  
21 Q. Are there any kind of experiments or  
22 empirical studies that could be done in order to  
23 attempt or help determine who or what the designer  
24 or designers is or are?  
25 MR. WHITE: Are you speaking currently?



1 triplets, you know, for the entire 20 amino acids  
2 that it is coding for, we find, by empirical  
3 analysis, that the genetic code is optimized to  
4 minimize the effects of base changes in that code.  
5 Now, that causes me to pause and wonder.  
6 It causes my colleagues to pause and wonder how is  
7 nature so lucky on random chance? You know, that  
8 this frozen accident, Francis Crick refers to it as  
9 the genetic code, is mind boggling. So --  
10 Q. Uh-huh. Let me just go back, though.  
11 Do you have a scientific opinion on  
12 whether anything above complex molecular systems  
13 were designed? By that I mean, do you have a  
14 scientific opinion as to whether any complex animal  
15 species were designed as opposed to just the  
16 microscopic complex biological systems?  
17 A. No, no. Again, it goes back to this  
18 question of where is the designer intervening in  
19 this process? And, you know, I don't know. I mean  
20 that's speculation.  
21 Q. Is there any kind of consensus in the  
22 intelligent design on that issue?  
23 A. You have people from the entire spectrum  
24 from theistic evolutionists all the way up to  
25 six-day creationists. It is a pretty broad tent in

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1 terms of people that ascribe to intelligent design.  
2 Q. How old do you think the universe is?  
3 A. Well, the current, you know, consensus  
4 was 20 billion years, although the COBE satellite  
5 experiment measurements have reduced that to about  
6 12.5 billion years in terms of the age of universe.  
7 The earth, according to multiple scientific  
8 independent analyses, is somewhere around 4.5  
9 billion years old.  
10 Q. Do you accept those concepts?  
11 A. Yes.  
12 Q. Does intelligent design theory accept  
13 those beliefs about the age of the universe and the  
14 age of the earth?  
15 A. There is not a set consensus, okay?  
16 Although I think it is a prominent position. But  
17 there are both. I mean, from the camp you have your  
18 old earthers and young earthers and both ascribing  
19 to a designer.  
20 Q. So are there some scientists within the  
21 fields of intelligent design theory who believe that  
22 earth is less than 10,000 years old?  
23 MR. WHITE: Objection, speculation, lack  
24 of relevancy.  
25 THE WITNESS: Oh, I'm sure there are, you

1 know?  
2 BY MR. LUCHENITSER:  
3 Q. Again, I'll give another hypothetical.  
4 If students in the Dover School District were taught  
5 that the earth's history can compress into a  
6 framework of several thousand years, would they be  
7 misled about scientific knowledge?  
8 A. It's inconsistent with the present body  
9 interpretation, okay?  
10 Q. What is your belief on about how long ago  
11 life first appeared on earth?  
12 A. Well, from the fossil record you have  
13 fossil bacteria that appear at 3.8 billion years,  
14 somewhere around that time period.  
15 Q. And what is your opinion on how long ago  
16 the first multi-cellular animals on earth appeared?  
17 A. I'm not a paleontologist, I don't know  
18 what the time frame is, but it's a significant  
19 period afterwards from the first appearance of  
20 prokaryotes.  
21 Q. Do you have any opinion or knowledge as  
22 to how long ago the first land dwelling animals  
23 appeared on earth?  
24 A. Again, that's changed, from my  
25 experience, over time, so I don't -- I don't fix a

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1 specific time period. Again, it's not my area of  
2 expertise.  
3 Q. Do you know what the consensus is in the  
4 field of paleontology on that?  
5 A. I have read it, but I don't recall a  
6 specific number, but I don't have any problem with  
7 it.  
8 Q. Would 450 million years ago sound right?  
9 A. Sure.  
10 Q. You don't have any reason to disagree  
11 with that consensus?  
12 A. No.  
13 MR. WHITE: I'll object to this line of  
14 questioning. He said this is all outside of his  
15 area of expertise.  
16 BY MR. LUCHENITSER:  
17 Q. Does intelligent design theory accept the  
18 general consensus among paleontologists as to the  
19 time line of the development of major kinds of life  
20 on earth?  
21 A. I think you have a spectrum of people  
22 that are looking at that information. Some of them  
23 are constrained by their religious beliefs and, you  
24 know, there are scientific creationists within the  
25 intelligent design camp that wouldn't say that so

1 they are looking at a young earth viewpoint. And  
 2 there are other people that accept an old earth  
 3 scenario, the sequential appearance of organisms in  
 4 the geologic record.

5 Q. I think before we talked a little bit  
 6 about the concept of a common ancestry or common  
 7 decent, and let me try to define common ancestry or  
 8 decent as not necessarily that life descended from  
 9 one cell that appeared three or four billion years  
 10 ago, but that all life today developed from one or a  
 11 few microorganisms that existed several billion  
 12 years ago. So let's put aside the question whether  
 13 it was one or several or a bunch of different  
 14 ones. Defined broadly in that sense, do  
 15 you accept the concept of common ancestry or common  
 16 decent?

17 A. I think it is highly speculative for  
 18 anybody to make an assertion along those lines based  
 19 on our knowledge, okay? This is looking at  
 20 historically -- let me put it this way. The  
 21 empirical science of nutrition can't figure out if  
 22 butter or margarine is better for us, yet at the  
 23 same time we make definitive statements that life  
 24 arose from primitive ancestral organisms on this  
 25 planet.

1 that you would not accept the proposition of common  
 2 ancestry or common decent as I have broadly defined  
 3 it?

4 A. Okay, look at -- I am trying to think. I  
 5 want to quote a couple of things from my report  
 6 directly so it's in the record. From Carl Woese,  
 7 who is a leading --

8 MR. WHITE: Just for me to clarify, are  
 9 you talking Exhibit 1? You are quoting from page  
 10 six; correct?

11 THE WITNESS: Yes, at the top of the  
 12 page.

13 So this is in the peer-reviewed  
 14 literature, this is a prominent evolutionary  
 15 biologist, and looking at what you are talking about  
 16 in terms of the origin of life.

17 He says, "The creation of the enormous  
 18 amount of and degree of novelty needed to bring  
 19 forth modern cells is by no means a matter of waving  
 20 the usual wand of variation and selection. What was  
 21 there, what proteins were there to vary in the  
 22 beginning? Did all proteins evolve from one  
 23 aboriginal protein to begin with? If you  
 24 extrapolate that all organisms evolved from one  
 25 single organism to begin with? Hardly likely!

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1 It goes back to the question that I have  
 2 covered before, what is the capacity to change for  
 3 any organism? That's an unknown at this point. How  
 4 did these first organisms appear? You know, what is  
 5 the mechanism whereby natural law can produce a  
 6 replicating organism? I mean, that again is an  
 7 unknown quantity.

8 We know that the smallest free-living  
 9 organisms on this planet, the micro plasma, have on  
 10 the order of 300 to 350 genes, okay? So you've got  
 11 to have at least that amount of information before  
 12 you can replicate life that we know it at present.  
 13 That's a lot of information required.

14 Now, is just natural phenomena sufficient  
 15 to produce that? I'm unwilling to say. From my  
 16 professional experience, no. Whether you have 10  
 17 organisms, a hundred organisms, primordial organisms  
 18 appearing de novo, or one, I mean, you know, it is  
 19 an event that is on the range of the miraculous,  
 20 regardless of whether you still believe it is by  
 21 natural process or a designer, okay?

22 So am I making myself clear?

23 Q. I'm not sure. It sounds like you are  
 24 saying -- at least it's your personal opinion, based  
 25 on the scientific understanding that you have, is

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1 Evolution's rule, to which there are fortunately a  
 2 few exceptions, is that you can't get there from  
 3 here."

4 So the transitions required to go from  
 5 simple organism complex, we know from experience you  
 6 can't get there from here from our present  
 7 understanding of these organisms.

8 "Our experience with variation and  
 9 selection in the modern context does not begin to  
 10 prepare us for understanding what happened when  
 11 cellular evolution was in its early rough-and-tumble  
 12 phases of spewing novelty."

13 So you are asking me an opinion on  
 14 something that the leading evolutionists are at this  
 15 point speculating on and agreeing that our present  
 16 understanding of natural selection and variation in  
 17 modern context doesn't prepare us for understanding  
 18 what happened in the historic context, or historic  
 19 events billions and billions of years ago.

20 If I can find it --

21 So to rephrase where we are, I mean, the  
 22 question is dealing with common decent, okay?

23 Q. I'm trying to get past what happened  
 24 several billion years ago. I'm trying to kind of  
 25 say it in layman's terms of once the development of

1 carbon and nitrogen that has a potential use for  
2 energy, okay, and cycling into other components of  
3 the cell.

4 It may be recalcitrant, you know, so it  
5 it has never appeared on earth before. There are  
6 organisms that aren't specifically capable of  
7 breaking down and utilizing that compound, but over  
8 time, if you put stress on the organism, you can  
9 develop, modify enzymatic pathways that will evolve  
10 and use and break open, say, a chlorinated biphenyl,  
11 or something like that. So I have no problem with  
12 that.

13 Q. How would you define science?

14 A. Science is the discipline of accumulating  
15 knowledge of the natural world.

16 Q. Are you familiar with the National  
17 Academy of Science's definition of scientific  
18 theory?

19 A. Yes.

20 Q. Would you know it off the top of your  
21 head?

22 A. I could paraphrase it. It would be a  
23 statement or a set of statements that explain a set  
24 of facts or phenomena through, you know,  
25 experimentation or observation.

1 review a biology curriculum for a private Christian  
2 school and they had a -- I don't know where their  
3 curriculum was from, but it was creationist. I  
4 said, "Use Ken Miller's book, augment it with Pandas  
5 and People if you want a counter-argument. But I  
6 have no problem.

7 If you read further in that paragraph he  
8 says, "Theory are subject to change as new  
9 information is gathered and compared to the model of  
10 any theoretical explanation."

11 That's a history of science, is  
12 revolutions in thought. You accumulate more  
13 information or you look at it in light of new  
14 circumstances and you go back and you modify  
15 theories to be consistent with observed fact or  
16 experiments.

17 Q. Can you tell me what the difference is  
18 between a hypothesis and a scientific theory?

19 A. Well, they can be used interchangeably,  
20 and they are all the time from a working  
21 perspective.

22 I have a student that will come in and  
23 say, "Hey, I have a theory that this gene is  
24 participating in knocking out this function in a  
25 white blood cell." Fine. You know, that's really a

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1 Q. That seems pretty close to what I have  
2 down here, but I will just read you back what I have  
3 here, which I believe is the actual definition. It  
4 is a quote.

5 "A well substantiated explanation of some  
6 aspect of the natural world that can incorporate  
7 facts, laws, inferences, and tested hypotheses."

8 A. Sure.

9 Q. Do you accept that as a valid definition  
10 of a valid scientific theory?

11 A. Yes, I do.

12 Q. And under that definition does  
13 intelligent design qualify as a scientific theory?

14 A. Yes.

15 Q. I'm going to read you a definition from a  
16 Ken Miller's Biology Book of Science.

17 "First, science deals only with the  
18 natural world; second, scientists collect and  
19 organize information in a careful, orderly way,  
20 looking for patterns and connections between events;  
21 third, scientists propose explanations that can be  
22 tested by examining evidence."

23 Would you agree with that definition?

24 A. Sure, it's right out of his biology  
25 textbook. And in fact, you know, I was asked to

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1 hypothesis.

2 A hypothesis is an idea that predicts  
3 certain outcomes that are testable experimentally,  
4 all right? Then once you carry out the experiment  
5 or a set of experiments, is it consistent with your  
6 original hypothesis? So it can be something as  
7 simple as an idea or a conjecture. First, as a  
8 theory, which is more formally, you know -- and  
9 according to the National Academy is based on well  
10 documented experimental evidence that has been  
11 accumulated over time and subject to experimental  
12 verification.

13 Q. And then it is your opinion that  
14 intelligent design is a scientific theory; is that  
15 correct?

16 A. Yes.

17 Q. And with reference to the National  
18 Academy of Science's definition, can you explain how  
19 intelligent design satisfies that definition? Maybe  
20 we should go by the components of the definition.

21 The first component is a well  
22 substantiated explanation. Can you explain how  
23 intelligent design theory can be considered a well  
24 substantiated explanation?

25 A. Looking at the public evidence, okay, in



1 okay? It's a true code.  
 2 Our experience tells us whenever we find  
 3 a code there is a coder. In the same context, we  
 4 look at subcellular machines, a new view of our  
 5 understanding of the cell that is within the last 40  
 6 years. We didn't know about the bacterial flagellum  
 7 and how sophisticated it was, we didn't know about  
 8 DNA replication and their profound efficiency and  
 9 editing functions.

10 We have to look at this new data and say  
 11 is natural selection up to the task to produce this  
 12 level of complexity and specification?

13 Put it this way, on the Genome To Life  
 14 web site that was produced by the Department of  
 15 Energy several years ago, they make the statement in  
 16 the introduction that is to be read by the public  
 17 that, "The molecular machines we find in the  
 18 simplest of organisms produced by evolution dwarf  
 19 the engineering feats of the twentieth century."

20 Natural laws, undirected, unintelligent,  
 21 un-in-purpose, un-forward looking can produce  
 22 machines more sophisticated than the entire  
 23 community of intelligent design engineers.

24 (Off the record.)

25 MR. WHITE: He was going to finish his

1 historically.  
 2 Q. Is the idea that science doesn't consider  
 3 supernatural causes as methodological naturalism an  
 4 accurate term for that concept?

5 A. Right, if you are only going to -- if you  
 6 are going to define science as only accepting  
 7 natural cause and event to explain the phenomenon  
 8 you are studying, fine, if that's your definition of  
 9 science. It may not be the reality or the truth of  
 10 the situation.

11 Q. Do you disagree with the current  
 12 definition of science that does not -- that's too  
 13 many negatives.

14 I think you agree that the current  
 15 definition of science does not consider supernatural  
 16 causes. Do you disagree that that should be the  
 17 correct definition?

18 A. It's a qualified disagreement, especially  
 19 in this debate. If the science is pointing you to  
 20 an intelligent cause, then you have to go where the  
 21 data leads. If you are limiting your  
 22 interpretation, your interpretations, or what you  
 23 will accept as interpretations, it has consequences.

24 And I'm the first person to say we look  
 25 for natural causes, natural explanations first, all

1 answer from before.

2 MR. LUCHENITSER: I'm comfortable with  
 3 the answer, I don't need anything more on that.

4 THE WITNESS: The last bit of the  
 5 sentence. So I'll continue with the statement, "The  
 6 molecular machines in even the simplest of organisms  
 7 produced by evolution dwarf the sophistication and  
 8 subtlety of machines produced by man, essentially.  
 9 I mean, that's a paraphrase.

10 BY MR. LUCHENITSER:

11 Q. Does the science only consider natural  
 12 causes?

13 A. Not necessarily, okay? You always look  
 14 for natural explanations first. I mean, that is  
 15 consistent. But I mean, there are sciences that  
 16 look for signs of intelligence, whether it is the  
 17 SETI project, if you are a forensic scientist, if  
 18 you are an archeologist, you know? You are looking  
 19 at natural products and asking is there an  
 20 intelligence involved in what you are seeing.

21 Q. Does science ever consider supernatural  
 22 causes?

23 A. Under our current definition of science,  
 24 natural methodological science excludes  
 25 supernatural, but that hasn't been the case

1 right? But I'm not opposed to looking at the data  
 2 any more than a forensic pathologist is and saying,  
 3 you know, is it a natural death or was this a  
 4 designed death, is this a murder?

5 Is natural law sufficient to describe  
 6 life forms on this planet or not? It's a valid  
 7 question. If it is insufficient, then that implies  
 8 that there may be an intelligence behind it, or in a  
 9 definitional term, a supernatural cause. But I'm  
 10 not saying supernatural in the way that you would  
 11 imply superstition or a specific god, et cetera. It  
 12 is just above the natural explanation.

13 Q. Would you agree with the proposition that  
 14 in order for intelligent design theory to be  
 15 considered valid science, science has to go beyond  
 16 the concept of methodological naturalism?

17 A. It would have to be modified. But again,  
 18 this is an artificial definition, in my mind. If  
 19 you are only going to accept natural explanations,  
 20 then that's all you are going to see, because by  
 21 definition you aren't even going to allow any other  
 22 explanation into the conversation.

23 Q. So in order for intelligent design theory  
 24 to be valid science, does the definition of science  
 25 have to be broad enough so that science can consider

1 supernatural causes?  
2 A. Right, I mean, isn't that what is going  
3 on in NASA when you have all these radio telescopes  
4 pointed out in the universe and asking the pattern  
5 of pulsar magnetic radiation, different types of  
6 radiation coming at us? Is it all just natural, or  
7 is there somebody out there that has intelligence  
8 that is trying to communicate with us?

9 I mean, that is going beyond, that is  
10 looking at the natural data and saying, "Is there an  
11 intelligence behind it?" That is legitimate. You  
12 are looking for patterns, you are looking for  
13 specificity, and it is being used now as part of our  
14 scientific methodology.

15 Q. But there you are talking about looking  
16 for extraterrestrial life, so it still seems that  
17 you are looking at natural actors as opposed to the  
18 supernatural actor. Now with respect to intelligent  
19 design theory, doesn't --

20 A. Intelligent design theory doesn't rule  
21 out the fact that those natural actors may have a  
22 super intelligence that participated in development  
23 of life on this planet, okay? And we don't know  
24 that they exist so it is supernatural to our  
25 experience. We don't know that there are aliens out

1 interpretation of natural phenomena. It has  
2 consequences. If you are only going to accept the  
3 laws of physics and chemistry, time and chance, as  
4 an explanation of life on this planet, how it arose,  
5 how it diversified, that could have -- that could be  
6 a methodological stricture that has consequences in  
7 terms of the progress of science.

8 Going back to Einstein's experience, he  
9 came up with a radical new interpretation of the  
10 universe that had philosophical, religious,  
11 metaphysical implications. Whatever you want to  
12 call it, he didn't like it, all right? And he  
13 essentially fudged his equations to eliminate that  
14 interpretation that impeded science.

15 All I'm saying is that I think in  
16 biological systems we infer, in a consensus  
17 viewpoint, that natural cause and effect is  
18 sufficient to explain what we see, and I disagree  
19 with that. It has the same types of implications  
20 that were faced by the big bang theory, and that's a  
21 legitimate area of exploration scientifically.

22 Q. On page one you say, kind of in the  
23 middle of the last full paragraph on the page, you  
24 refer to neo-Darwinism as the generally accepted  
25 mechanism. So you would agree that evolution is a

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1 there. We don't rule them out, we don't know they  
2 haven't visited this planet. So that is, by  
3 definition, supernatural, and there are a lot of  
4 scientists that agree.

5 Francis Crick looked at the common  
6 evidence in biology and said life could not arise on  
7 this planet de novo, it was seeded by some  
8 extraterrestrial source, in formulating his theory  
9 of Pan Spermia, all right? Nobel laureate, looking  
10 at the evidence, saying that there is some  
11 supernatural event in terms of our understanding of  
12 natural events on this planet, that solar winds blew  
13 in some primitive organism or someone visited this  
14 planet and seeded life. I mean, that's pretty far  
15 out, but it is one of the hypotheses.

16 Q. Let me draw your attention to the top of  
17 page 10 of your report, all the way to the top. You  
18 say, "The real problem may not be determining the  
19 best explanation of the origin of the flagellum.  
20 Rather it may be amending the methodological  
21 strictures that prevent consideration of the most  
22 natural and rational conclusion."

23 Can you tell me what you meant by  
24 amending the methodological strictures?

25 A. In other words, it is limiting our

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1 generally accepted theory in the scientific  
2 community?

3 A. Sure.

4 Q. Would you agree that intelligent design  
5 theory is not generally accepted by the scientific  
6 community?

7 Q. Oh, I agree, I agree. Like I said, it is  
8 a minority opinion; in some people's minds it is  
9 heretical, okay? But again, you can look at the  
10 history of science and that's how we progress, by  
11 challenging the status quo and holding it up to, you  
12 know, an explanatory filter that has got to be  
13 consistent with the information as we see it.

14 I think it is legitimate debate. That's  
15 why we are here. I respect Ken Miller and he is  
16 serving a purpose in this debate, you know? He is  
17 -- and I am all for it. I enjoy the interaction  
18 that we have had in a limited sense.

19 That's how science works. You have areas  
20 of contention that can be small, they can be large  
21 with cosmological implications. But that's how we  
22 progress, by keeping each other honest.

23 Q. In your report, again I've quoted -- and  
24 this is before the beginning of the last paragraph  
25 on page one, you state that, "Intelligent design